These parts are quite similar in the red-breasted grosbeak (*Habia ludoviciana*); but the upper portion of *cucullaris* is wider, apparently reaching the dorso-medial line, and is not so distinct from the skin. The propatagial slip is quite strong, and blends with the tendon of *t. propatagii longus* farther towards the metacarpus, although not distinct so far as in the swallow figured by Dr. Shufeldt.

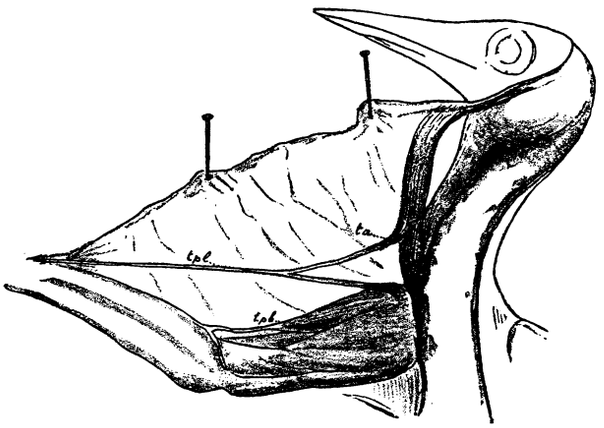

FIG. 1. — DORSAL VIEW OF THE PATAGIAL MUSCLES OF A WOODPECKER, COLAPTES AURATUS (DISSECTED AND DRAWN BY THE PRESENT WRITER).

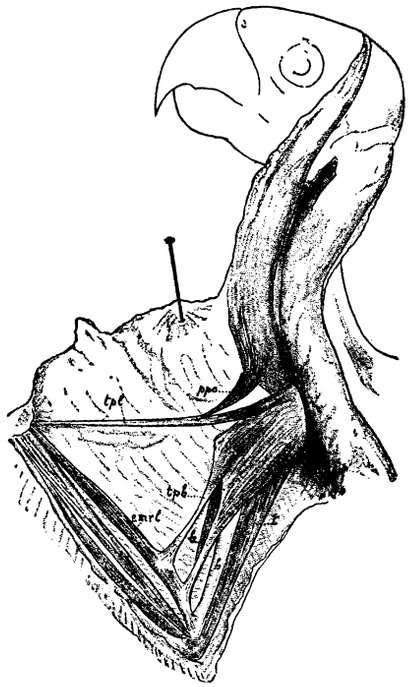

FIG. 2. — CORRESPONDING PARTS OF A PARROT, AMAZONA LEUCOCEPHALA (DISSECTED AND DRAWN BY THE PRESENT WRITER).

tpl, tensor propatagii longus; *tpb*, tensor propatagii brevis; *ta*, temporo-alaris, or *ppc*, pars propatagialis m. cucullaris; *b*, biceps; *t*, triceps; *h*, humerus; *emrl*, extensor metacarpi radialis longus. (Both figures one-third natural size.)

From the arrangement as I find it in a young flicker (*Colaptes auratus*), to that of the fully detached *temporo-alaris* of *Lophorina*, there is but a very short step, as will be seen from the accompanying figure (Fig. 1). The insertion on *t. propatagii longus* is more distal, however, than in *Lophorina*.

On the other hand, the case of *Amazona leucocephala* (Fig. 2) is more like that of *Habia;* but here again there is a difference in regard to the insertion of the tendon, it being more proximal in the parrot, though not so much so as in *Lophorina*.

From Dr. Shufeldt's description, it would seem as if, in the swallows at least, the temporal part of the muscle has become obsolete, — an arrangement corresponding exactly to that which Mr. Viallane found in the cockatoos.

In *Lophorina superba*, as shown by Mr. Viallane, the posterior end of *cucullaris* is the portion that has become obsolete. The parapatagial slip is here strongly developed, and the junction with *propatagialis longus* takes place rather close to the shoulder.

Dr. Shufeldt claims that this muscle in question is 'wholly absent' in the kingbird (*Tyrannus tyrannus*). In this case, also, I am forced to disagree. Upon dissecting a bird of this kind, I find the propatagial slip of *cucullaris* present, but it does not insert itself on *propatagialis longus*, nor does it develop any tendon at its distal termination. It inserts itself, however, on the skin just where it overlies the fleshy portion of *propatagialis longus*. As in the other birds examined, it follows the free margin of the *parapatagium*.

In a young *Sayornis phœbe* the arrangement is essentially the same, though less distinctly developed, only a few muscular fibres being traceable.

A cuckoo (*Coccyzus erythrophthalmus*) gave a similar result. The whole *m. cucullaris* was exceedingly thin, with the fibres greatly disconnected.

Returning to those species in which the propatagial slip joins the *tensor propatagii longus*, I wish to record the fact, that both in *Passer* and *Habia* I found the propatagial portion of *m. cucullaris* to give off a slight muscular slip to the base of the humeral feather-tract, the feathers of which it probably helps to raise.

This leads to the question as to the function of the propatagial slip. In the first place, it acts as a *tensor parapatagii*. When particularly developed in its proximal portion, as in *Lophorina*, it also raises the elongated neck-feathers, while special development of its tendineal portion aids in strengthening the *tensor propatagii*.

The fact that it occurs similarly developed in so distantly related groups as the parrots, the woodpeckers, and the acromyodian *Passeres* (or *Oscines*) robs it, to a great extent, of its taxonomic value; even were it proven to be present in all the latter, and absent in all the *mesomyodi*, of which we are by no means sure. The example, however, which Dr. Shufeldt adduces to show its importance, is not a very fortunate one; for no ornithologist who knows that *Ampelis*, the waxwing, and the cedar-bird have laminiplantar tarsus, rudimentary tenth primary, and acromyodian (oscinine) syrinx, has had any excuse for suspecting, during the last forty-five years, that its "clamatorial characters" are "predominating in its organization."

Since the above was placed in the hands of the publisher, Dr. Shufeldt has corrected (*Science*, July 29) the mistake in regard to *Rhamphastos* being a passerine bird, — a mistake which he said was caused by circumstances beyond his control. It is a matter of congratulation that he also presents a new drawing of the propatagian muscles of the swallows, in which he corrects the mistake of the former drawing, which represented the swallows as having a *tensor propatagii brevis* with an insertion similar to that of the picarian *Rhamphastos*. LEONHARD STEJNEGER.

Smithsonian Inst., Washington, D.C., July 22.

Cause of Consumption.

IN the number of your journal for July 8 my respected friend, Dr. Donaldson, has a compact article on the cause of consumption. I agree to every word of it, but would suggest that he has not named one influence which for many years I have held to be a most potent one in New England, and also in Old England, in the development of that terrible disease; viz., residence upon a damp soil. This factor was first proved to be a powerful one in Massachusetts in 1862. Three years subsequently it was proved still more conclusively to exist in England by Dr. Buchanan, medical officer of the Local Government Board of that country. So far as I know, nothing has been done to prove or disprove whether it prevails over the whole world, or only on certain portions of it. I believe, from facts which I have already learned, that it is really a cosmic law. As it is desirable that it should be proved or disproved in this wide sense, I would respectfully suggest it as a subject worthy of the appointment of a world's commission, consisting of an able man from every country that may be represented in the International Medical Congress, which is to be held in Washington this autumn.

My professional experience since the law was first found to be

operative in New England has proved to my own satisfaction that it is vain to attempt to treat consumption while the patient is subjected to this deleterious influence; fatal, indeed, I might call it. My first prescription is to leave the damp locality. Why such a residence tends strongly to the production of consumption — whether as having something, as yet unknown in itself, or that it acts as the nursery of bacilli — I cannot say. But I feel in regard to the above practical rule, as the late Dr. John Ware said to me, that, "with the evidence which has been presented, I feel that I should be criminally in fault in regard to a patient if I did not enforce it."

If any one wishes for further information, I refer him to Dr. Buchanan's reports to the Local Government Board (1866 and 1867),[1] my addresses before the Massachusetts Medical Society in 1862,[2] and before the International Congress which met at Washington in 1876.[3]

HENRY I. BOWDITCH.

Boston, July 23.

Technical Education.

I HAVE to-day received from Sir Henry Roscoe copies of two bills recently introduced into Parliament, through the action, I presume, of the National Association for the Promotion of Technical and Commercial Education, of which the Marquis of Hartington is president, providing for an extension of the technical branches of education in the general scheme. Accompanying these bills is a request for information in regard to what is being done in the United States. I take the liberty of suggesting that such among the readers of *Science* as may have any information of this nature which may be of service to the cause in Great Britain send any documents that may contain it, either directly to Sir Henry Roscoe, at 5 Palace Chambers, Bridge Street, Westminster, S. W., London, or, if preferred, to me. I will see that any thing so sent is forwarded, and should be particularly obliged if duplicates could be at the same time supplied for my own use.

The bills above referred to consist of provisions for the introduction of technical studies and the simpler forms of manual training into day and evening schools, and empower the school boards, local authorities, or managers of public elementary schools, to provide instruction in the use of ordinary tools, in commercial arithmetic, geography, book-keeping, modern languages, and freehand and machine drawing. The powers of the authorities are extended to these schools as in the common schools, defined in the Elementary Education Act of 1870, and they are given leave to apply for grants, and to raise funds, for these technical schools as for the older forms of elementary schools. The term 'parliamentary grant' is held to include any grant made by the Science and Art Department. This legislation is prepared and brought into Parliament by Sir Henry Roscoe, Sir Lyon Playfair, Mr. Dixon, Sir John Lubbock, and Sir Richard Temple (50 Vict.).

The evening schools thus provided for are also authorized to provide instruction in the ordinary school studies of the primary grades, and for the girls, sewing, cooking, domestic economy, and hygiene.

R. H. THURSTON.

Ithaca, N.Y., July 23.

Distillery-Swill as a Food for Milch-Cows.

PLEASE send me *Science*, commencing with June 10, containing the first article on distillery report; also your *Swiss Cross*. We are interested in the milk articles now coming out in *Science*.

Some eighteen years ago I owned a dairy, and run on one thousand acres of land eight hundred cows. I had one stable that held 672 cows; it was kept clean, and was well ventilated. For eighteen months I fed distillery-swill. From my experience in feeding swill to milch-cows, I should say that it produces tuberculosis. In addition to swill, I fed grass and hay, and during the summer months 'soiled.' At the expiration of eighteen months, I stopped feeding swill; and the number of cows that had to be disposed of because they had consumption was reduced to so few, that I do not now remember that there were any. It is my opinion that if cows are closely confined, and fed on swill and hay exclusively, tuberculosis will develop in nine cows out of every ten inside of a year. The nutritive quality of swill-food depends upon the amount of water put upon the grains after fermentation. I have never had any practical experience in feeding sweet distillery-swill; but if fed in moderate quantities, not too hot and sweet, and with hay and other dry and very nutritious food, I can see no reason why it should be harmful. Parties who produce swill-milk for sale in large cities find swill to be the cheapest food for the production of milk, and consequently use it to excess. I have never seen swill fed sweet in more than one city dairy, and I have been in fifty.

CHARLES CABANNE.

St. Louis, July 25.

[1] Reports of the Medical Officers of the Privy Council, 1866-67, proving that subdrained, sewered towns have less consumption than others not so subdrained; or, as Mr. Simon expresses himself, "*dampness of the soil is an important cause of consumption to the population living upon the soil*" [Mr. Simon's Italics].

[2] Consumption in New England, or Locality One of its Chief Causes: an Address delivered before the Massachusetts Medical Society. By Henry I. Bowditch, M.D. Boston. Ticknor & Field, 1862.

[3] Public Hygiene in America; being the Centennial Discourse delivered before the International Medical Congress, Philadelphia, September, 1876. By Henry I. Bowditch, M.D. With extracts from Correspondence from the Various States, together with a Digest of American Sanitary Law, by Henry G. Rehering, Esq. Boston, Little, Brown, & Co.; London, Trubner & Co.; 1877.

Queries.

12. MOSQUITOES. — Is any one able to corroborate the following observation of an old resident of Staten Island? "I have lived on Staten Island twenty years," said an old gentleman on the Staten Island ferryboat the other evening, "and I have noticed a remarkable thing about the mosquitoes. They always disappear after a storm, and it is invariably just seven days before they return."

T. J. H.

13. ELECTRICITY AND THE EARTH. — Professor Dolbear, in *Science* for July 29, at p. 60, says, "As for the earth being a reservoir of electricity, every thing that is known about electricity negatives the idea." On the other hand, at p. 507 of Deschanel's treatise on natural philosophy, translated by J. D. Everett, the statement appears, "On account of its practically inexhaustible capacity for furnishing or absorbing electricity, the earth is often called the *common reservoir*." Upon the next page of the text-book named, the effect of moisture in the atmosphere upon the insulation of electrical machines is discussed in a manner that is misleading, if Professor Dolbear's statements in regard to the relative conductivity of dry and moist air are rightly understood. Has Deschanel been superseded?

M. A. VEEDER.

Lyons, N.Y., July 30.

Answers.

10. ROBIN'S NEST. — I have in my collection a three-story robin's nest taken from the sill of an unused window of the Watertown High School. I have often seen the old birds in the spring repairing the nest, and have photographed the bird and nest *in situ*.

H. M. HILL.

Watertown High School, N.Y., Aug. 1.

11. LAKE ITASCA. — A recent official bulletin of the Minnesota Historical Society, entitled 'The Sources of the Mississippi,' submits the following (p. 24) as one of the "results of their finding:" "That Henry Rowe Schoolcraft, accompanied by Lieut. James Allen, in a scientific expedition made by him, July, 1832, to the head waters of the Mississippi River, did discover, locate, delineate, and map the general basin, which is the first great gathering-place and reservoir of the head waters of that continental stream, and was by him named Lake Itasca, from the Latin words *veritas caput* ('the true head')." A more particular account of the occurrence is given, with other historical matter, in, I think, Andreas' or Andrea's large atlas of Minnesota, to which I have not present access. The statement is substantially this: Schoolcraft who was not a classical scholar, having arrived at the lake, asked of one of his party, perhaps Lieutenant Allen, the Latin equivalent for 'true' meaning 'real,' and was given *veritas*. He then desired the Latin for 'head,' and, being told it was *caput*, at once formed the combination Itasca, and applied it as a name to his new-found lake. It thus appears that the term *veritas* may either have been given Schoolcraft through mere inadvertence, or through misconception of his inquiry, as supposing him to wish an equivalent for 'the true,' 'the real,' in its substantive instead of its adjective form.

FRANC E. BABBITT.

Coldwater, Mich., July 22.